

Claims

- [c1] 1.A display panel having liquid crystal filled between two substrates, comprising:
gate lines and signal lines arrayed in a matrix type on one of said substrates;
common electrodes arranged above said gate lines and said signal lines with an insulating layer interposed therebetween; and
pixel electrodes for generating electric fields with said common electrodes, wherein each of said pixel electrodes is provided with a first electrode and a second electrode arranged above the first electrode with an insulating layer interposed therebetween, said first and second electrodes being electrically connected to each other.
- [c2] 2.A display panel having liquid crystal filled between two substrates, comprising:
gate lines and signal lines arrayed in a matrix type on one of said substrates;
common electrodes arranged above said gate lines and said signal lines with an insulating layer interposed therebetween, said common electrodes being arranged at both sides of a pixel region defined by said gate lines and said signal lines; and
pixel electrodes, each being arranged in an intermediate position between two of said common electrodes adjacent to each other, wherein each of said pixel electrode is provided with first electrode arranged in the same layer as said common electrodes and second electrode arranged in the same layer as said signal lines, said second electrode being electrically connected to said first electrode.
- [c3] 3.The display panel according to claim 2, wherein said common electrodes overlap said signal lines in a thickness direction of said display panel.
- [c4] 4.The display panel according to claim 2, wherein said first electrode and said second electrode are provided in positions where said first electrode overlaps said second electrode with said insulating layer interposed therebetween.
- [c5] 5.The display panel according to claim 4, wherein said second electrodes are arranged so as to be extended over approximately a full length of said pixel

region in a direction where said signal lines are extended.

[c6] 6.The display panel according to claim 2, wherein said second electrode is connected to a switching element for controlling drive voltage to said pixel electrodes.

[c7] 7.A display panel, comprising:
pixel electrodes for applying drive voltages to optical display elements;
common electrodes for generating electric fields in a direction along a substrate surface with said pixel electrodes;
switching elements for controlling drive voltages to said pixel electrodes;
gate lines for transmitting scanning signals to said switching elements;
signal lines for transmitting display signals to said switching elements; and
shield electrodes provided in positions closer to said signal lines than said pixel electrodes, said shield electrodes being set at potentials electrically equal to those of said pixel electrodes.

[c8] 8.The display panel according to claim 7, wherein said common electrodes are arranged closer to said signal lines than other electrodes.

[c9] 9.The display panel according to claim 7, wherein each of said common electrodes and each of said pixel electrodes are formed to be bent in order to divide an alignment direction of the optical display element into at least two directions in a pixel region defined by said gate lines and said signal lines.

[c10] 10.The display panel according to claim 9, wherein said pixel electrodes are provided with storage capacitors for storing potentials supplied to said pixel electrodes on lines where bent portions of said common electrodes at both sides of said pixel electrodes are mutually linked.

[c11] 11.The display panel according to claim 9, wherein, in each pixel region, a storage capacitor line for storing a potential supplied to said switching element is provided in a portion where the alignment direction of the optical display element is switched.

[c12] 12.A display device, comprising:

a display panel in which an optical display element is arranged between two substrates; and
a drive circuit for driving said display panel,
wherein said display panel comprises:
a plurality of pixel regions defined by signal lines and gate lines arrayed in a matrix type;
common electrodes arranged on outer peripheral portions of said pixel regions,
said common electrodes covering said signal lines and said gate lines;
pixel electrodes for generating electric fields in a direction along surfaces of said substrates with said common electrodes in order to drive the optical display element; and
shield portions for shielding electric fields from said signal lines, and
said drive circuit comprises:
a signal line drive circuit for supplying display signals to said pixel electrodes via said signal lines; and
a gate line drive circuit for supplying scanning signals via said gate lines in order to control drive voltages to said pixel electrodes.

[c13] 13.The display device according to claim 12, wherein said pixel electrodes overlap said shield portions in a thickness direction of said display panel.

[c14] 14.The display device according to claim 13, wherein said pixel electrodes and said shield portions are arranged with an insulating layer having a predetermined thickness interposed therebetween, said pixel electrodes and said shield portions being arranged on one and the other surfaces of the insulating layer, and said signal lines are arranged in the same layer as said shield portions.